Two research consortia will present their results at a meeting in Brussels on November 28-29, 2011, at the Square Conference Centre, Brussels (also see this link).

A media conference will be held on November 29 at 12.45h. The press releases of both consortia are included below.

**CONCORD PRESS RELEASE**

**EMBARGOED UNTIL 29 November 12.45h**

A European alliance of scientists confronts the spread of dangerous MRSA strains in the community and livestock

Hospital-acquired MRSA is so well adapted to the hospital that it has difficulty to survive outside the hospital. This is one of the conclusions of a European research project involving an alliance of European scientists.

The alliance conducted this research in collaboration with 8 European research groups from six countries – Denmark, France, Poland, Portugal, the Netherlands, and the UK - in the CONCORD project. The European Union funded the project in 2009 with 3 million euros for 3 years.

MRSA is present in hospitals since the 1960s and since the 1990s also became prevalent in the community and the last years among livestock. MRSA prevalence varies among European hospitals but can reach more than 50% in some intensive care units. The bacterium however did not escape from the hospitals but emerged, amongst others through antibiotic and zinc use, among live-stock. The eradication of MRSA among live-stock is practically impossible to achieve. Mathematical models show that the intensive contacts between farms maintains the contamination even when only low levels of the bacterium are present.

The MRSA variant present in hospitals is adapted to the hospital. It is more resistant to antibiotics, but as a consequence grows more slowly. This means that it is difficult to get rid of the bacterium in the hospital, but that it will hardly spread outside the hospital. In contrast the variant in the community is less resistant to antibiotics and grows normally. The research project also showed that MRSA found among livestock differs from both the hospital and community variant.

The bacterium is genetically flexible and has been shown to adapt rather easily to new circumstances. Therefore, MRSA remains a health care threat. A solution is not yet available and prudent use of antibiotics is currently the only option to limit spread as much as possible.
New research shows close contact needed to catch MRSA from pigs

Novel control technologies can reduce the risk on farms and in hospitals

The resistant bacterium, MRSA ST398, is often associated with pigs but mostly affects people who have regular and close contact with the animals. These results were presented by an international research group at Brussels*. However, the genes for resistance are mobile and can spread to other bacteria which could then infect people creating an important source of resistance. New technologies to reduce infection pressure in farms have been tested and shown to be effective. This may offer new infection control tools for hospitals.

People who regularly work with pigs such as farmers or veterinarians are very likely to carry MRSA ST398 and can bring it into their homes where family members may pick it up. However, this happens more frequently in certain countries, indicating a role of hygienic precautions, and perhaps also of other factors such as farm size. The spread of MRSA ST398 beyond farms into the general community is low with less than 1% of MRSA found in people with no direct pig contact. This result was confirmed by a simulation model where MRSA disappeared from humans after less than a week. In this model, out of the very few humans carrying MRSA ST398, most had not obtained it by direct contact with pigs but from other sources including people. However, 1 in 3 circulating MRSA could ultimately have originated indirectly from pigs.

MRSA ST398 can colonise human skin cells, but does not always do so. Similar variability has been observed in individuals brought into contact with the bacterium. In most people MRSA disappears rapidly, but in 1 in 3 individuals, the bacteria were able to maintain themselves in the nose for up to 21 days; factors determining their colonisation and growth rates are not yet known. Genetic analysis of MRSA ST398 allows differentiation of strains from pigs and humans, and also from different countries. Genetic profiling could therefore be used to trace the origin of infections.

Contaminated rooms and surfaces are an important source of exposure to MRSA. PILGRIM researchers conducted studies in MRSA contaminated rooms. New technologies including photocatalytic paints, air decontamination with ultra violet irradiation and misting with electrochemically generated metal ion solutions were applied and shown to reduce or eliminate MRSA contamination. “These novel approaches to environmental decontamination represent an important advance at a time when we are faced with an increasing threat from MRSA and other multiresistant bacterial infections” says Professor David Lloyd from the Royal Veterinary College.

*The consortium called “PILGRIM” was coordinated by researchers from the Royal Veterinary College, London. Research teams from Belgium, Denmark, and The Netherlands led specific research parts. Industry partners from the Czech Republic, Switzerland and the UK were also involved (details provided at www.fp7-pilgrim.eu). PILGRIM was funded by the European Commission with 3 Mio € over three years 2008-2011. Image material is available on request from mmesserli@accelopment.com